

occupants nor adversely affect continued safe flight.

[Amdt. 29-3, 33 FR 971, Jan. 26, 1968]

Subpart G—Operating Limitations and Information

§ 29.1501 General.

(a) Each operating limitation specified in §§ 29.1503 through 29.1525 and other limitations and information necessary for safe operation must be established.

(b) The operating limitations and other information necessary for safe operation must be made available to the crewmembers as prescribed in §§ 29.1541 through 29.1589.

(Secs. 313(a), 601, 603, 604, and 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, 1424, and 1425); and sec. 6(c), Dept. of Transportation Act (49 U.S.C. 1655(c)))

[Amdt. 29-15, 43 FR 2327, Jan. 16, 1978]

OPERATING LIMITATIONS

§ 29.1503 Airspeed limitations: general.

(a) An operating speed range must be established.

(b) When airspeed limitations are a function of weight, weight distribution, altitude, rotor speed, power, or other factors, airspeed limitations corresponding with the critical combinations of these factors must be established.

§ 29.1505 Never-exceed speed.

(a) The never-exceed speed, V_{NE} , must be established so that it is—

- (1) Not less than 40 knots (CAS); and
- (2) Not more than the lesser of—
 - (i) 0.9 times the maximum forward speeds established under § 29.309;
 - (ii) 0.9 times the maximum speed shown under §§ 29.251 and 29.629; or
 - (iii) 0.9 times the maximum speed substantiated for advancing blade tip mach number effects under critical altitude conditions.

(b) V_{NE} may vary with altitude, r.p.m., temperature, and weight, if—

- (1) No more than two of these variables (or no more than two instruments integrating more than one of these variables) are used at one time; and

(2) The ranges of these variables (or of the indications on instruments integrating more than one of these variables) are large enough to allow an operationally practical and safe variation of V_{NE} .

(c) For helicopters, a stabilized power-off V_{NE} denoted as V_{NE} (power-off) may be established at a speed less than V_{NE} established pursuant to paragraph (a) of this section, if the following conditions are met:

(1) V_{NE} (power-off) is not less than a speed midway between the power-on V_{NE} and the speed used in meeting the requirements of—

(i) § 29.67(a)(3) for Category A helicopters;

(ii) § 29.65(a) for Category B helicopters, except multi-engine helicopters meeting the requirements of § 29.67(b); and

(iii) § 29.67(b) for multi-engine Category B helicopters meeting the requirements of § 29.67(b).

(2) V_{NE} (power-off) is—

(i) A constant airspeed;

(ii) A constant amount less than power-on V_{NE} ; or

(iii) A constant airspeed for a portion of the altitude range for which certification is requested, and a constant amount less than power-on V_{NE} for the remainder of the altitude range.

(Secs. 313(a), 601, 603, 604, and 605 of the Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421, 1423, 1424, and 1425); and sec. 6(c), Dept. of Transportation Act (49 U.S.C. 1655(c)))

[Amdt. 29-3, 33 FR 971, Jan. 26, 1968, as amended by Amdt. 29-15, 43 FR 2327, Jan. 16, 1978; Amdt. 29-24, 49 FR 44440, Nov. 6, 1984]

§ 29.1509 Rotor speed.

(a) *Maximum power-off (autorotation).* The maximum power-off rotor speed must be established so that it does not exceed 95 percent of the lesser of—

(1) The maximum design r.p.m. determined under § 29.309(b); and

(2) The maximum r.p.m. shown during the type tests.

(b) *Minimum power-off.* The minimum power-off rotor speed must be established so that it is not less than 105 percent of the greater of—

(1) The minimum shown during the type tests; and

(2) The minimum determined by design substantiation.